Annual Report **2023**

ÅRSMELDING

Centre for Elderly and Nursing Home Medicine

Senter for alders- og sykehjemsmedisin

Content

Demand for healthcare is increasing – available resources are decreasing

Published in the Norwegian Medical Journal, Bjørnelv GW and Melberg HO (2023) describe the age-dependency-ratio (number of working people) and the expected number of people with dementia between 2022 and 2100. In 20 years, a crossing of both lines is expected: available resources go down drastically while the line for those who need health care (often people with dementia) goes up drastically.

By 2050, only 2.5 people will be financially liable for a person over the age of 67. Norway is placed at the European top in resource use for health and care services (Health Commission Report, 2023) but already now, municipalities are struggling with a growing staffing crisis. Focus on technical aids is well established in diagnosis, treatment, and rehabilitation. Welfare technology in the care services is also becoming increasingly widespread and contributes to better quality and a greater scope of

services as a supplement to necessary care for patients and relatives. However, the technology is often not tested and implemented in those with complex conditions and people with neurological diseases, living at home and in nursing homes. Ethical approval processes are demanding when technology and artificial intelligence are to be used by those who are no longer able to give informed consent. These studies are costly and time-consuming, and they require user involvement. But this technology often cannot be tested in "ordinary people".

As never before, SEFAS in 2023 has received funding from the Western Norway Regional Health Authority, the GC Rieber Foundation, the University of Bergen, the Trond Mohn Foundation, the Research Council of Norway, and the European Research Council (ERC). As described in this annual report, studies such as DARK.DEM, DIPH. DEM, ORAL.DEM, NAD, CC.AGE, and 5-D are including people with complex conditions and dementia. The inclusion processes are carefully prepared and based on close cooperation with our local, national, and international research- and industry partners, including Tohoku University (JP), Yale University (US), Harvard University (US), Massachusetts Institute of Technology (US), and Leiden University (NL). We are very grateful for that.

Bettina S. Husebø, MD, PhD, Prof.

Head of Centre for Elderly and Nursing Home Medicine (SEFAS)

Centre for Complex Conditions and Ageing (CC.AGE)

Innovative technology and good care will improve the lives of older adults! This is the goal of the new Centre for Complex Conditions and Ageing (CC.AGE)

Research shows that older adults appreciate living independently at home for as long as possible!

Meanwhile, we are living much longer than before, while at the same time having fewer children.

Already today, informal caregivers are under considerable strain, because many elderly people get several chronic diseases at the same time, take a lot of medications, and experience loneliness, while the health sector must make financial priorities. The shortage of professional healthcare workers will have major consequences in the future.

To tackle this health challenge, we must be at the forefront technologically, while retaining vital care in our society. CC.AGE will change Norwegian care for older adults forever, because it does not require digital competence and is based on the users' individual needs and wishes.

The Centre for Complex Conditions and Ageing, CC.AGE, will develop and test a digital platform in collaboration with users and municipality healthcare workers to deliver new knowledge about which digital aids can contribute to increased quality of life and safety for home-dwelling elderly and how to achieve seamless integration.

Both in Norway and in Europe elsewhere, there is a large growth in welfare technology and sensors that you can have on your body, in bed or wall mounted. The challenge is that these things often are not connected to each other, and many older adults are not able to handle them.

CC.AGE is financed by the Trond Mohn Foundation and the University of Bergen and this new center will consist of more than 10 researchers. Together with professors from Tohoku in Japan, Yale, Harvard McLean, Massachusetts Institute of Technology (MIT), and Leiden University, NL, we will work closely with the IT and construction industry, the EITRI incubator, and with the Alrek Health Cluster, which includes both the Bergen Municipality, and Helse Bergen.

Trond Mohn and Bettina Husebø.

Decoding Death and Dying (5-D) granted by ERC

Decoding **D**eath **and D**ying in people with **D**ementia by **D**igital thanotyping **(5-D) - ERC (European Research Council) Consolidation Grant**

The Value of Death - our The Lancet Commission report describes that death has changed radically over the latest generation, it comes later in life for many, it is often prolonged, and has moved from the family setting to institutions.(1) Hospital treatments often continue into the last hours of life, while the assessment and treatment of pain and distressing symptoms is inappropriate in nursing homes and, especially, in dying people with dementia. Rebalancing this requires much better knowledge of the dying process and its timeline. However, diagnosing dying is a grueling task as clear markers are lacking, and informed, continuous monitoring is not realized for many people at the end of life.

But how can we recognize that a person with dementia is at the end of life? When we are dying, our physical, mental, and social abilities are gradually declining. No reliable method of predicting perceived dying currently exists although the technology is available (sensors, algorithms).

In our newly financed ERC-project *Decoding Death and Dying in Dementia by Digital thanotyping (5-D)* med and my interdisciplinary team aim to provide methods and tools to diagnose and describe dying to an unprecedented level of accuracy and robustness, within a timespan larger than is possible now, focusing on the case of dying people with dementia as one of the most vulnerable and difficult to study groups. 5-D combines clinical assessment tools with wearable sensing technology to monitor a) pain and distressing symptoms, b) behavioral and psychological symptoms in dementia (BPSD), c) oral changes, and to decode "the point of no return" as the beginning of perceived dying.

To obtain this outcome in nursing home patients with dementia, we will test the main hypothesis: from monitoring the evolution of thanotype components over time and their interdependencies, the prediction of the "point of no return" is possible. During this project we will collect data using sensors and validated assessment scales; develop estimation methods for BPSD from sensor measurements; develop digital tools to capture the expression of pain; determine the relationship between breathing and oral symptoms; develop models for symptom interdependencies at the end of life and the "point of no return", and finally perform human-in-the-loop validation of developed tools, models, and algorithms.

The ground-breaking interdisciplinary novelty of 5-D endeavors to enhance our understanding of end-of-life underlying pain and symptoms in people with dementia. Advancing our theoretical knowledge to uncover *how, when, and why* perceived dying can be identified opens the doors for transferable research across several scientific fields.

Prosjektet vil starte sommeren 2023 og vare til desember 2027, og vi vil ansette 2 stipendiater og en post-doc tilknyttet prosjektet. DARK.DEM er et samarbeid mellom SEFAS, psykologisk fakultet ved UiB ved professor Elisabeth Flo-Groeneboom, Valen Sjukehus i Helse Fonna ved psykiater og PhD Tone Henriksen, ViD vitenskapelige høyskole ved 1. amanuensis Stein Erik Fæø, NKS Olaviken alderpsykiatriske sykehus ved psykologspesialist og 1.amanuensis Minna Hynninen, og Bergen kommune. I styringsguppen er professor Geir Selbæk, leder av Aldring og Helse, professor Claus Martiny ved Københavns universitet og lysarkitekt Carlo Volf ved Universitetssykehuset i København.

---

[1] Sallnow L, Smith R, Ahmedzai SH, Bhadelia A, Chamberlain C, Cong Y, et al. Report of the Lancet Commission on the Value of Death: bringing death back into life. Lancet. 2022;399(10327):837-84.

The DARK.DEM trial, Line I. Berge

Artificial intelligence and artificial darkness to alleviate behavioral and psychological symptoms of dementia. The DARK.DEM trial is funded by the Research Council of Norway.

Behavioral and psychological symptoms of dementia (BPSD) describe changes in behavior and mental state which is caused by the dementia syndrome, and encompasses amongst others anxiety, depression, psychosis and agitation. These symptoms are prevalent in persons with dementia, often treatment resistant, resource demanding and contributes to worsening of cognition, independency, reduced quality of life and increased mortality.

Line Iden Berge is a specialist in psychiatry, senior doctor at NKS Olaviken gerontopsychiatric hospital and associate professor at SEFAS. In august 2022 she received 10.6 mill/Nok from the Research Council of Norway for the project "Virtual darkness and digital phenotyping in specialized and municipal dementia care: The DARK.DEM randomized controlled trial (1). This project will merge expertise in elderly medicine, psychiatry, psychology, chronotherapy, computer science and hermeneutics, to improve diagnostics and treatment of BPSD management in both specialized and municipal dementia care. The trial will be conducted at NKS Olaviken gerontopsychiatric Hospital and Bergen municipality. In the first part of the project, we will use artificial intelligence to examine if data from Empatica E4 smart watches can provide accurate measures of agitation, depression and sleep disturbances in persons with dementia admitted to Olaviken. In the second part of the project, we will conduct a randomized controlled trial at Olaviken to determine if treatment with virtual darkness, that is, light without blue wavelengths, can alleviate agitation and other BPSD among inpatients at the hospital. This treatment had very good effect in reducing manic symptoms in persons with bipolar disorders in a recent trial(2). In our trial, the virtual darkness treatment will be added to regular treatment, and we will explore if it also improves level of functioning and quality of life, in addition to reduction of psychotropic drugs, use of coercion, and length of hospital stay. In the final part of the project, we will conduct focus group interviews with leaders in nursing homes in Bergen to explore barriers and enablers for implementation of the new methods in municipal dementia care. As such, the project will lead to improved diagnostics and treatment of BPSD compared to today's practices.

Moreover, these new services can be utilized regardless of level of care, and as such, reduce inequalities in access to specialized health care services.

The DARK.DEM trial started August 2023, inclusion of patients from August 2023 and will be finalized in December 2027. PhD candidate Sunniva Skagen will start in January 2024 and work with the quantitative data from the trial, while PhD candidate Kjersti Nedreskår will start spring 2024 and work with the qualitative data from the trail together with Associate professor Stein Erik Fæø, ViD Specialized University. In addition, we will hire a post-doc with technical background to work with digital data from the devices.

DARK.DEM is a collaboration between SEFAS, the Faculty of Psychology, UiB, with professor Elisabeth Flo-Groeneboom, Valen sjukehus, Helse Fonna with psychiatrist, senior doctor and PhD Tone Henriksen, ViD specialized university represented by associate professor Stein Erik Fæø, NKS Olaviken gerontopsychiatric hospital with senior psychologist and associate professor Minna Hynninen, and Bergen municipality. The steeringgroup encompasses professor Geir Selbæk, head of Ageing and Health, Professor Claus Martiny University of Copenhagen and light architect Carlo Volf at the University Hospital of Copenhagen.

Line I. Berge

Sunniva Skagen

Kjersti Nedreskår

1 Norway TRCo. Prosjektbanken: Virtual darkness and digital phenotyping in specialized and municipal dementia care: The DARK.DEM randomized controlled trial 2023 [Available from: https://prosjektbanken.forskningsradet.no/project/FORISS/334750?distribution =Ar&chart=bar&calcType=funding&Sprak=no&sortBy=score&sortOrder=desc&resultCount=30&offset=0&Fritekst=DARK.DEM.

2 Henriksen TE, Skrede S, Fasmer OB, Schoeyen H, Leskauskaite I, Bjorke-Bertheussen J, et al. Blue-blocking glasses as additive treatment for mania: a randomized placebo-controlled trial. Bipolar Disord. 2016;18(3):221-32.

# Closing remarks:
The LIVE@Home.Path trial

The LIVE@Home.Path trial is SEFAS grand investment in municipal dementia services and home-dwelling persons with dementia. The project is financed by the Research Council of Norway (NFR) and is a collaboration with NORCE, the Western Norway University of Applied Sciences, Haraldsplass Deaconess Hospital, the Dignity Centre and the municipalities of Bergen, Bærum and Kristiansand.

LIVE@Home.Path applies both qualitative and quantitative methods to explore how different components (ie a multicomponent intervention) facilitated by a municipal coordinator can improve resource utilization and caregiver burden in dementia care. LIVE is an acronym for the components of the intervention, consisting of L for learning, I for innovation and ICT, V for volunteering and E for empowerment, that is, planning of treatment and care in the last period of life. In the quantitative part of the project, we are exploring how this multicomponent intervention can reduce number of informal care hours and caregiver burden applying a stepped wedge randomized controlled design, which implies that all participants eventually will receive the intervention, while the timing of the intervention is determined by randomization. In total, we have followed 280 dyads of persons with dementia and their informal caregiver from 2019 in Bergen, Bærum and Kristiansand, and implemented the coordinator facilitated LIVE intervention over 6 months. We have also performed qualitative interviews with selected dyads and volunteer coordinators along the trial.

We are now exploring the effect of the LIVE intervention on the trial's primary endpoint caregiver burden and informal care time. Post-doc Renira Angeles and post-doc Line Iden Berge visited Yale university, US, in the autumn 2022 to work on the analyses together with Professor Heather Allore and Associate professor Fan Li. Fan Li did also visit SEFAS in September 2023, continuing working on the analyses and manuscript. Berge presented the trials preliminary results on the International Congress of Psychogeriatrics in Lisbon July 2023. We expect that the results will inform how we provide health care services to families affected with dementia in the near future.

- PhD student Marie Hidle Gedde used data from the LIVE trial and defended her thesis on the 16th February 2023: Behavioral and Psychological Symptoms of Dementia. The impact of medication reviews in multicomponent interventions and the consequences of Covid-19 restrictions
- PhD student Maarja Vislapuu uses data from the LIVE trial and is close to submitting her thesis: Informal and formal resource utilization in people with dementia.
- PhD student Eirin Hillestad at the Dignity Centre study volunteerism in dementia care by conducting interviews with volunteer coordinators.
- Post-doc Nathalie Puaschitz at the Western Norway University of Applied Sciences works on implementation of assistive technology in dementia care.
- Post-doc Renira Angeles, Norce, works on the cost of informal dementia care in economic evaluations.

We are now exploring the effect of the LIVE intervention on the trial's primary endpoint caregiver burden and informal care time. Post-doc Renira Angeles and post-doc Line Iden Berge visited Yale university, US, in the autumn 2022 to work on the analyses together with Professor Heather Allore and Associate professor Fan Li. Fan Li did also visit SEFAS in September 2023, continuing working on the analyses and manuscript. Berge presented the trials preliminary results on the International Congress of Psychogeriatrics in Lisbon July 2023. We expect that the results will inform how we in the future will provide health care services to families affected with dementia.
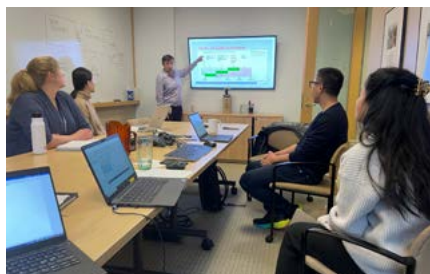
# Between Heathcare and Complex Systems, Monica Patrascu

Monica Patrascu, PhD is a systems scientist specialized in artificial intelligence, currently working on modeling complex bio-socio-technical systems and unobtrusive wearable monitoring applied to neurodegenerative diseases, such as dementia and Parkinson's disease. Their main contributions to science are in the fields of intelligent systems and systems engineering, particularly in data- and knowledge-driven modeling, control, and signal processing (complex and fuzzy systems, evolutionary optimization, biosystems), with applications in a wide variety of domains, including healthcare and robotics.

2023 has been a year in which multiple research paths have intertwined.

Continuing from the previous years, the ActiveAging project's two branches, Helgetun and DIGI.PARK, continue to investigate the experiences of older adults in innovative living environments and symptom tracking for Parkinson's disease (PD). In February, Monica took over as the main supervisor of Haakon Reithe, a PhD candidate focusing on unobtrusive measurements for PD symptoms and the feasibility of wearable devices for this task. Monica also serves as a co-supervisor for Lisa Aaslestad, a master student writing her dissertation on classification of sleep disturbances in PD. A new algorithm for the quantification of hand tremors has also been developed by the team, while an ethnographic study by PhD candidate Elise Førsund received a best post award in September. This work has produced several presentations, posters, and manuscripts currently under review.
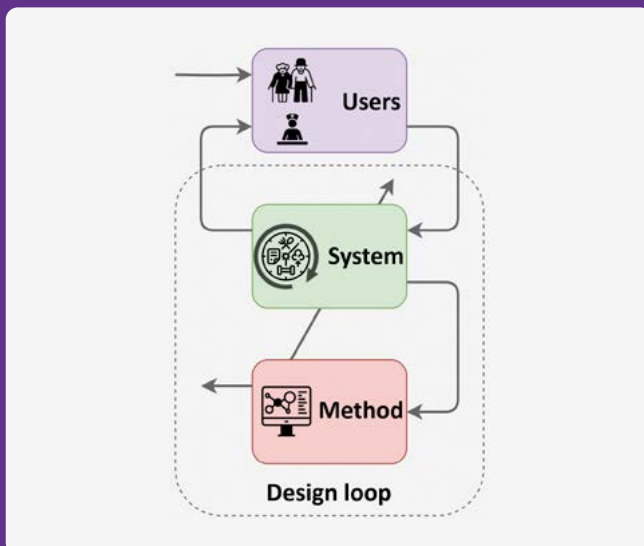
In May 2023, the observational trial on Digital phenotyping for changes in activity at the end of life in people with dementia (DIPH.DEM) began. Monica serves main supervisor for Lydia Boyle, the PhD candidate associated with the project, and as project manager for this Helse Vest funded work, sponsored by Neuro-SysMed, UiB. The trial received approval from the Regional Committee for Medical and Health Research Ethics (REK) and is slated to begin recruitment in January 2024. Lionel Giriteka joins the team as a medical student, to write his dissertation as a systematic review on activity recognition in older adults with dementia and PD.
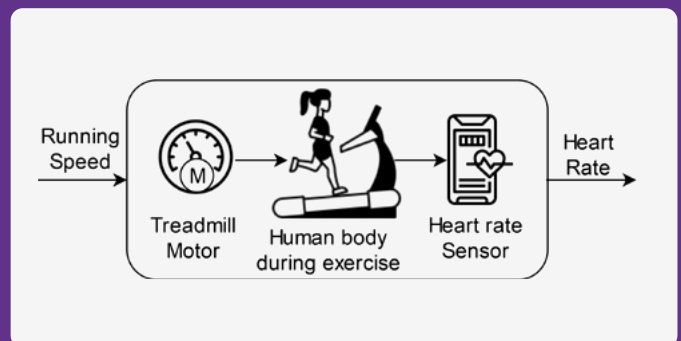
The collaboration with Babes-Bolyai University (UBB), Cluj-Napoca, Romania, continues during the design of digital biomarkers for human heart rate response to exercise. Data collection was organized and completed at UBB from healthy adults to inform evolutionary machine learning algorithms during the first phase of the design, with one article under review. These techniques will then be applied in analyzing data from participants with PD in the DIGI.PARK study.
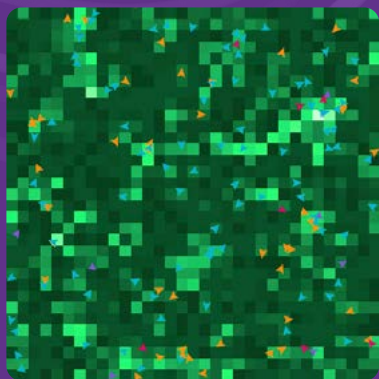
In September 2023, the thesis titled "Contributions to Large-Scale Complex Systems: from Evolutionary Computing to Scale-Free Networks" was defended by Andreea Ion at the Faculty of Automatic Control and Computers, University Politehnica of Bucharest (UPB), Romania. As part of the CitySCAPE (Citywide Synergic Control Architecture for Protection during Emergencies) project, the thesis was completed under Monica's supervision and produced 9 publications. CitySCAPE began in 2011 at the Complex Systems Laboratory (xLab, UPB) and represents an ongoing research effort into adaptive, sustainable smart city design for urban living environments.

The investigations into human interactions as complex systems continues with results related to the spread of mis- and disinformation, known as "infodemics", which are becoming a common concern as digital communication increases in prevalence. Cristian Berceanu, PhD candidate, under Monica's supervision, has developed agent-based models for both crowd dynamics and information diffusion processes, resulting in two publications and one abstract, with two more manuscripts under evaluation.

2023 has also been a year of good news, with further projects receiving funding. In these, Monica joins the leading teams, overseeing AI design, platform development, and advanced data analysis and modeling. The upcoming projects investigate death and dying in person with dementia (5-D: Decoding Death and Dying in people with Dementia by Digital thanotyping financed by the European Research Council, ORAL.DEM: Oral care at the end of life in people with dementia financed by Helse Vest), as well as mitigating behavioral symptoms (DARK.DEM, financed by the Norwegian Research Council). Monica is also a co-PI for the upcoming Centre for Complex Conditions and Ageing (CC.AGE), financed by the Trond Mohn Foundation and the University of Bergen, which aims to improve the quality of life for home-dwelling older adults with chronic complex conditions.

> *"Complexity that works is built up out of modules that work perfectly, layered one over the other."*
>
> *Kevin Kelly*

Monica Patrascu

In 2023, Monica has served as a guest editor for the special edition of BMC Medicine on "Pain in vulnerable groups" which will close in February 2024. Invited talks and other dissemination include topics related to digital phenotyping, robotics, AI ethics, and infodemics, aimed at various audiences, including Harvard McLean Hospital, MIT, Yale University, Nebula Conference, the locally organized Pandemifrokost, and the Western Norway Regional Committee for Medical and Health Research Ethics (REK Vest). Patrascu's position is funded by UiB.

Nicotinamide Riboside for frail elderly, the NADage study, Katarina Lundervold

This clinical study, designed as a double-blind, randomized, placebo-controlled study, aims to investigate the potential of nicotinamide riboside (NR) to decelerate functional decline in the elderly frail population.

In animal studies, NR, which is converted to nicotinamide adenine dinucleotide (NAD), has shown potential as a neuroprotective agent, with indications of protection against amyotrophic lateral sclerosis (ALS), Alzheimer's dementia, and Parkinson's disease. Furthermore, aging is commonly associated with decreased tissue NAD levels, a phenomenon linked to premature aging and a spectrum of age-related disorders, including cardiovascular diseases and cancers. Existing preclinical and clinical research highlights the promise of NAD replenishment through enhanced DNA repair, Sirtuin activity, and improved mitochondrial function. Our research center has conducted two phase II clinical trials, NAD-PARK and NR-SAFE, on NR for Parkinson's disease, administering up to 3000 mg of NR daily. These trials have shown promising results, indicating NR's potential as a treatment that may alter the course of the disease and possibly as a neuroprotective treatment in Parkinson's disease.

The NAD age trial primarily aims to determine:

- The efficacy of NAD therapy in improving clinical symptoms of frailty, evaluated through standardized physical and cognitive function tests.
- The safety of administering 2000 mg NR daily in a elderly frail population.

The study will include 100 individuals, classified as frail based on the Fried Frailty Phenotype. Participants will be randomly assigned to receive either 2000 mg of NR daily or a placebo. Over a 26-week period, participants will undergo:

- Clinical evaluations, including actigraphy and questionnaires.
- Cognitive assessments.
- Biosampling.
- Brian scans, including magnetic resonance imaging (MRI) and positron emission tomography (FDG-PET).

The outcomes of this study could potentially demonstrate that NR effectively reduces signs of frailty, offering considerable advantages to the individuals affected, their families, and society as a whole.

The study is funded by GC Rieber foundation and is a collaboration between SEFAS and Neuro-SysMed, Centre for Clinical Treatment Research on Neurological Diseases.

Katarina Lundervold

GCRIEBER FONDENE

Neuro-SysMed

Electrical Engineer and Neuroimaging, Brice Marty.

In its inauguration speech of the Université Libre de Bruxelles, 20th of November 1834, Auguste Baron told: *"We pledge to inspire our students, whatever the content of our academic teaching, to love their fellow humans with no distinction of caste, opinion, or nation; we pledge to teach them how to devote their thoughts, their work, and their talent to the happiness and improvement of their fellow citizens and humankind."*. **As an academic, that is what I'm trying, modestly to fit with.**

I started my studies with a master's degrees in electrical engineering, at the Université Paul Sabatier in Toulouse, France, I continued with a PhD in Neuroimaging from the Medicine faculty of the Université Libre de Bruxelles once awarded I worked at the Psychology school of the Faculty of society and Design at Bond University, GoldCoast, Australia, to finally be part of the SEFAS, here in Bergen.

The job of an academic in three parts: knowledge, transmission, and usefulness of the produced knowledge. Our first duty is trying to reach the state of the art in our fields, the second one diffuses this knowledge to our peers, the students, and the general audience, the last part is trying to make a part of our research work useful and applicable at long or short term to improve life of other human fellows.

Here in SEFAS I found the conditions to work in that way:

We work for and with one of the most vulnerable part of the population: the elderly suffering of dementia and or Parkinson disease. The core question of all projects I am involved in is the wellbeing of those people and the next generations (which could be us and probably sooner than we hope) both in ActiveAgeing, CC.AGE, 5-D or DARK.DEM. Here I try to bring my expertise of signal processing to analyze already collected data: By designing and developing original codes to optimize each of these recording by extracting signal of interest and find way to recognize feature of symptom or typical movement I participate to provide enough information to the team to write high standard papers.

My second contribution would be to include my neuroimaging knowledge in our research especially by implementing the use of the functional near infrared spectroscopy (fNIRS) and its technical advantages to understand more deeply how the human cortex deals with aging, dementia, or Parkinson. Indeed, the characteristics of the fNIRS match with the necessity of wellbeing for the participants we impose on ourselves at SEFAS while providing us with new potentially crucial information about the phenomena we study.

Finally, the last part of my work here is teaching. I have the duty to support master's and PhD students with their data specially these without any background of data processing. On that purpose I created a new class of Algorithm and numerical method for the health researchers without background of engineering. Finally, I plan to supervise PhD and Master students to carry them up to achieve their training.

Doing that and by contributing to maintaining a warm, fair and pleasant working atmosphere at the SEFAS I would reach the recommendations of Professor Auguste Baron, indeed whatever a group's projects, its members, their wellbeing and working conditions are more important.

Brice Marty

New Algorithms class at SEFAS, Brice Marty

Interdisciplinarity is the core of a doctoral thesis, which is a strength but also a major challenge for the new PhD student. Dealing with it is one of the most common hurdles especially in heath science. Indeed, students with a background of medical doctor, nurse or psychologist must not only have a great knowledge in their own field but they also must be able to understand, to handle and at some point, be able to process a large range of data.

The complexity of these processes could vary from the classification in ascending order of age of onset of a disease to computation of the Wavelet Transform Coherence of two magnetoencephalography simultaneous recording. Data processing requires a large range of knowledge such as, signal processing, numerical method, non-linear dynamical system etc, all of those being managed by programming language and thus algorithm.

However, for health professionals and other non-engineers, their previous studies did not prepare them for these tasks, except for the statistical aspect of this work.

Their practical alternatives are thus few and far between asking to the group engineer's or asking artificial intelligence as ChatGPT, without being knowledgeable enough to have the necessary critical mind to apprehend its solutions. This situation leaves doctoral students blind to a large part of their work, vulnerable to errors, misinterpretations and led to a significant loss of time.

A corollary is also the lack progress in this and after 3 or 4 years of regular use of programming language (period which covers the duration of a bachelor program in engineering) they are still not able to write or even understand one line of code.

From this observation, several alternatives emerge: provide an efficient technical support typically as hjelp.uib which could supply a real help to the students, but which maintain the status quo a second possibility is training them.

Based on the quote (falsely?) attributed to Confucius *"Give a Man a fish, and you feed him for a day. Teach a man to fish, and you feed him for a lifetime."*, we choose the second one, I then developed with the support of Bettina Husebø and Guro Ackre a new class of Algorithm and numerical method for the health researchers without background of engineering. The idea of this class is to empower and make people uneducated in engineering method nor computer sciences knowledgeable enough to have the necessary

critical mind to apprehend data processing challenge, to be autonomous and independent, make them protagonists of this part of their work.
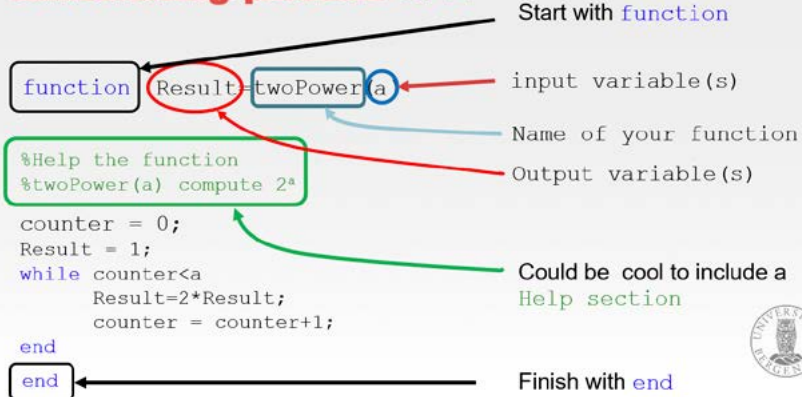
Our purpose is dispensing them a formal education, comparable to that received by an engineer, starting with basic education, training and teaching them the basics of algorithmics, scripting and programming, with application to MATLAB (a wide used scientific computing framework).

In a practice-oriented way with a large part dedicated of practical programming applications and exercises in a research context once they achieved this class the students should be able to have an informed opinion about the data processing aspect of their work, to discuss efficiently with the engineer or the technical people of its project. And more practically produce code in MATLAB to figure out data processing problem research oriented: Download from a real database, importation, conversion to a suitable format. display the raw data, apply the appropriate analyses tool.

Examples from the class.

ActiveAgeing, the DIGI.PARK branch, Haakon Reithe

My name is Haakon Reithe. I am a 31-year-old man from Tromsø. My background is in psychology and neuroscience, where I have developed a keen interest in the measurement of human physiology and cognition. I am currently a PhD candidate.

I am employed by SEFAS as a PhD candidate, working on the ActiveAgeing project. This project investigates how technology and innovative living environments can assist society in addressing the challenges posed by an increasingly aging population. Specifically, I am involved in the DIGI.PARK sub-project of ActiveAgeing. DIGI.PARK stands for Digital phenotyping in people with Parkinson's disease.

The project is a collaborative initiative between the Center of Excellence Neuro-SysMed and SEFAS. The team comprises myself, my supervisor and systems engineer Dr. Monica, computer engineer Dr. Juan Carlos Torrado Vidal, electrical engineer Dr. Brice Marty, Elise Førsund, Prof. Bettina Husebø, and Prof. Charalampus Tzoulis.

In my PhD, I am investigating the use of wearable sensor technology for research and clinical work in Parkinson's disease. We focus on how wearable smart technology, such as smart watches and smart rings, can measure activity and motor symptoms in people with Parkinson's disease. Parkinson's disease is characterized by disturbances in motor movements, including tremors, slowness, stiffness, and several other problems due to a degeneration of nerve pathways that produce dopamine, a signaling substance involved in movements in the brain. Parkinson's is a neurodegenerative disease for which there is currently no cure. There are no biomarkers for the disease either, making diagnosis and research challenging, and the symptoms are challenging to measure over time due to subjective and low-resolution assessment methods. Therefore, a more objective sensor-based approach is needed to measure the progression over time.

The DIGI.PARK study is ongoing, and we are in the analysis phase. Data collection was finished in December of 2022. We tested two different smart watches (Fitbit Sense and Empatica E4) and a smart ring (Oura ring) on 15 participants with Parkinson's and 15 control participants without Parkinson's. The control participants are from an innovative living environment called Helgetun, where my colleague Elise Førsund explores how living arrangements and smart technology affect ageing. During the year 2023 we disseminated preliminary results from the study by a poster at both the International Psychogeriatric Association Congress in Lisbon and at the Neuro-SysMed Annual Symposium.

We are currently analyzing the data. We are evaluating the devices and writing an article about this evaluation. In the second article, we are exploring the design of algorithms that detect tremors and potentially other features of the symptoms that can be relevant for tracking PD over time using wearables. These articles are planned to be published during next year."

Haakon Reithe

IPA conference in Portugal: Berge, Reithe, Patrascu and Husebø

Reithe and Husebø participating at Neuro-SysMed annual Symposium

Digital phenotyping for changes in activity, DIPH.DEM, Lydia D. Boyle

***Digital phenotyping for changes in activity at the end of life in people with dementia (DIPH.DEM)* is an observational trial based on sensing technology which investigates the activities and symptoms of people with dementia living long term in nursing homes. The trial is funded by Helse Vest and sponsored by Neuro-SysMed. DIPH.DEM will be based at the Bergen Red Cross Nursing Home and Haraldsplass Deaconess Hospital, Bergen, Norway.**

The trial aims to improve activity and behavioral assessment for people with dementia in nursing homes, contributing to improved quality and treatment decisions. DIPH.DEM will evaluate participants' physical, mental, and social activities, because many residents experience restlessness, pain, and poor sleep during their stay. To measure these activities and symptoms, we will use wireless sensors that sit bedside, smartwatches, and traditional questionnaires. This technology will help us obtain objective measurements of activities and symptoms, which will be used to strengthen traditional proxy-rated questionnaires, filled in by the participants and their next of kin. After receiving approval from The Regional Committee for Medical and Health Research Ethics (REK), the recruitment of participants is scheduled to begin at the Bergen Red Cross Nursing Home in January 2024.

Lydia D. Boyle is a Doctor of Physical Therapy with a degree from University of Texas, USA, and a master in global health from the Center of International Health at the University of Bergen, Norway. Lydia's background includes clinical experience within physical therapy in hospitals, outpatient clinics, and nursing homes, in both Norway and the United States.

As a PhD candidate, Lydia is spearheading the work of the DIPH.DEM trial. The multi-disciplinary team includes Monica Patrascu (systems scientist), Bettina S. Husebø (palliative care physician), Kristoffer Haugarvoll (neurologist), and Ole Martin Steihaug (gerontologist). DIPH.DEM has international partnerships in The Netherlands, United States, and Japan. The interdisciplinary nature of the project is ideal for the blending of clinical and computer science ambitions in efforts to identify specific markers within the data for symptoms such as agitation, apathy, and activities of daily living.

We thank all our partners within the project and look forward to working with future participants and their families to actualize the project in 2024.

The overarching impact of DIPH.DEM is to improve methods, diagnostic tools, and bring new knowledge into dementia care and research. DIPH.DEM will provide medical researchers with the necessary knowledge to start using new digital tools to evaluate symptoms, and engineering researchers with a new application domain, promoting interprofessional collaboration, learning and development.

Together we can improve end-of-life care for persons with dementia!

Lydia D. Boyle

Marie H. Gedde has finished her PhD connected to the LIVE@Home.Path-trial

Marie Hidle Gedde (Dr Med, PhD) reflects on PhD-period, defending her thesis and continuing into work life.

Nearly all people with dementia experience behavioral and psychological symptoms (BPSD) such as apathy, agitation, and psychosis. BPSD are often connected to a faster decline in daily functioning and an early move to nursing homes. Often, psychotropic drugs, spanning antipsychotics, anxiolytics, hypnotics/sedatives, antidepressants, and antidementia drugs, are prescribed to address these symptoms. However, the use of multiple drugs, including psychotropic ones, can pose risks to prescription safety in elderly people with various health conditions. As such, dealing with BPSD is challenging in dementia care.

Recognizing the challenges that individuals with dementia face in engaging with healthcare services, several strategies have been developed to enhance prescribing practices. To find better ways of dealing with this, the thesis looked at how reviewing medications in comprehensive care plans might help. It also investigated how Covid-19 restrictions affected BPSD.

Two trials in Norwegian municipal dementia care, both led by Professor Bettina Husebø, served as the backdrop. Psychotropic drug use underwent scrutiny in medication reviews. Nursing home physicians conducted medication reviews through collegial mentoring and systematic clinical evaluation in the COSMOS trial, whereas the LIVE@Home. Path trial counted on general practitioners for medication reviews in home-dwelling individuals with dementia. Additionally, the cohort study PAN.DEM compared BPSD in home-dwelling dementia patients before and during the Covid-19 restrictions when 'non-essential' healthcare services were curtailed.

Results unveiled a deterioration in BPSD among home-dwelling individuals with dementia during the initial phase of the Covid-19 pandemic. Intriguingly, medication reviews within multicomponent interventions in nursing homes and general practice did not significantly impact BPSD. Notably, the reduction in psychotropic drugs was most pronounced in individuals initially receiving several, and nursing home patients generally used more psychotropic drugs than their home-dwelling counterparts.

In conclusion, the thesis emphasizes that while 'care as usual' withdrawal during Covid-19 adversely affected BPSD, medication reviews within add-on multicomponent interventions did not yield the same impact. This underscores the pivotal role of established services in dementia care for effectively managing BPSD.

Dissertation
I defended the thesis on February 16th, 2023. It was such a fun experience to present and discuss my research with the opponents Professor Anne Gerd Granås and Professor Jørund Straand! Also, it was a fine opportunity to thank Associate Professor Line Iden Berge, my main supervisor, and the rest of the SEFAS team.

Current work
After serving as a PhD candidate, I transitioned into the role of a medical intern at Akershus University Hospital. Following that, I continued my internship in the Municipality of Aurskog-Høland, where I currently hold a position. I find that my background in geriatric research helps me learn better in both hospital and community healthcare settings, helping me grow professionally.

Marie H. Gedde

PhD defense

ActiveAgeing, the Helgetun branch, Elise Førsund

Elise Førsund is a PhD-candidate on the "Active Ageing" project at SEFAS. The aim of her PhD-project is to explore how a community-based living environment can affect the activity levels and well-being of older adults, using a qualitative approach.

"Helgetun" is a senior community-based living environment located in a rural area of Bergen. Helgetun aims to promote active ageing by facilitating mental, social, and physical participation. It consists of 31 rental apartments and several shared facilities. At Helgetun residents can join a variety of activities and gatherings, as well as volunteer at the nearby farm and kindergarten. This way of living can prevent loneliness and potentially delay the development of chronic complex conditions, allowing people to live longer independently at home.

During the period 2021-2022 I collected data from 15 residents of Helgetun, in two separate rounds (spring and autumn). Data included both digital measurements from wearable devices, and interview data. Based on the first round of interviews, we wrote an ethnographic paper called "Active ageing in community-based living environments: an ethnographic study", which is submitted and currently in peer review. The aim of this paper was to investigate which factors are important to facilitate active ageing in a community-based living environment. This knowledge is important for understanding **how these environments function** compared to theory and will be useful upon developing new similar housing projects.

For my second paper, I am looking more into their **motivation** for moving. This topic is important as older adults now are encouraged to plan for their own ageing, due to constraints in healthcare resources that come with an ageing population. Selling your house and moving to an innovative living environment – while still being healthy - is unusual for this age group, and learning more about their though process can be valuable upon encouraging others to take similar actions for their well-being. Thus, we asked the participants to tell the story of when they moved to Helgetun, in an unstructured interview approach. We believe that a lot of valuable information can be found in their stories. This will also give information about what they expected and how their experience so far reflects these expectations. Why did they decide to move? How did they proceed? Do their different motivations for moving reflect their experience with the living environment? For instance, does someone with a economically motivation have the same experience as someone with a more health-related motivation?

Another perspective we want to investigate further is the **implementation of smart-technology** for older adults. This is the aim for the third article. In addition to new living solutions, the use of smart-technology will be crucial in how meet the challenges related to an increasing ageing population. Implementation, adaption and motivation related to smart-technology for older adults is therefore an important topic of research in the years to come. Following the residents using wearable devices will also give objective measurements of how a community-based living environment affects activity levels, hart rates and sleep. For this study, we did two rounds of data-collections with a 6-month interval. Comparing their measurements and experiences using the devices, from the two data-collections, will give information about how exposure to smart-technology can affect implementation and motivation for staying active. Did they feel more motivated to stay active after using the devices? Are they more active the second round? Do they understand the technology better the second round? Has anyone bought a smart-watch after the first round?
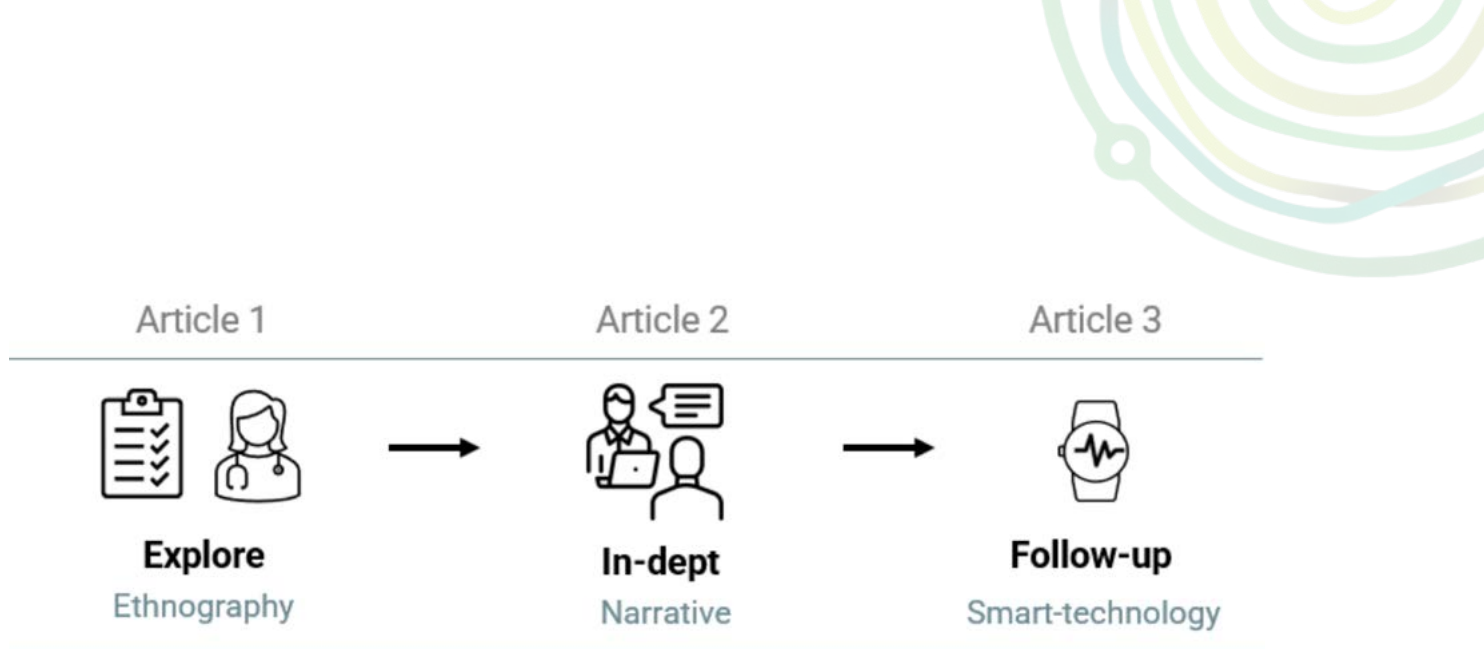
Article 1	Article 2	Article 3
Explore Ethnography	**In-dept** Narrative	**Follow-up** Smart-technology

❝ The aim of this paper was to investigate which factors are important to facilitate active ageing in a community-based living environment.

At Neuro-SysMed annual symposium.

Elise Førsund

Angelika Gilli was a Master's student at SEFAS in 2023

- Who is defining my quality-of-life?

My name is Angelika Gilli, and I wrote my master thesis at SEFAS, using data from LIVE@Home.Path trial. The **aim** of my thesis was to investigate discrepancies between self and proxy-rating scores of Quality of Life (QoL) in people with dementia, and factors associated with the discrepancies guided us. In addition, we examined whether the QoL of the caregiver influences the proxy-rated scores of people with dementia. A cross-sectional analysis of baseline data from the randomized controlled LIVE@Home.Path trial was the **design** of the study. Our **results** show that caregivers assess the QoL of people with dementia lower than people with dementia do, but the lowest discrepancy was found for caregivers who live with people with dementia.

Coming from the practice in the field of physiotherapy this thesis was a very intense **experience** from the beginning. Dealing with methods such as inter- rater agreements, Bland-Altman plots and Cohen`s kappa scores was all very new. After some discussions and clarifying conversations, several multiple linear regression models also made sense to me.

It was the best place ever I could have chosen for my internship. I enjoyed the time at SEFAS a lot, **thank you so much for everything**!

Vitality and Ageing, Leiden University
20 th April 2023- 30 th June 2023
Centre Supervisors Prof. Ass. Line Iden Berge
Prof. Bettina Sandgathe Husebø
Maarja Vislapuu MSc Elise Førsund MSc
Internship supervisor Prof. Med. Wilco Achterberg

Guro Almås is a Master's student at SEFAS in 2023

- Relative's burden of caring for people with dementia living at home

My name is Guro. I study health and society at the Department of Global Public Health and Primary Care (IGS). I'm writing a master's thesis and have been lucky enough to be able to use data from the study LIVE@Home.Path at SEFAS.

The purpose of the master's thesis is to identify factors that are associated with significant and/or not significant burden for relatives of people with dementia living at home. In the master project, I will use secondary data from LIVE@Home.Path's baseline collection. To examine relative stress, I will use the Relative Stress Scale (RSS) form. Furthermore, I will examine the correlation between RSS and various variables such as background information about the person with dementia and relatives and clinical factors.

Identifying factors that contribute to a significant burden on relatives is important to identify relatives who need more follow-up and to be able to maintain today's informal care. Identifying modifiable factors that don't significantly burden relatives can help design more effective health and care services for relatives.

Angelika Gilli

Guro Almås

Lionel Giriteka is a medical student doing his final thesis for the medical degree at SEFAS

Lionel Giriteka is a sixth-year medical student at University of Bergen, Norway. He has joined the SEFAS team as co-author of an umbrella review, which will serve as his final thesis for his medical degree. Lionel has ambitions within nursing home medicine and is keen on learning about how technology can shape the future of elderly care.

The interdisciplinary umbrella review is part of the DIPH. DEM (Digital phenotyping for changes in activity at the end of life in people with dementia) project and includes disciplines in engineering, allied health, medicine, and orthopedic surgery. This systematic review will explore current technology, such as smartwatches and artificial intelligence, being used for measurement of activities and behaviors in persons with dementia and Parkinson's disease. The article further investigates how sensor-based technology can enrich traditional measurements and the benefits of this approach for future care models.

Lionel and the SEFAS team plan to publish this important paper in 2024. The review serves to bridge the gap between the fields of computer science and clinical medicine. The team will include articles from both medical and technology-oriented journals within the review. We at SEFAS thank Lionel for his hard work and dedication to the project!

Lisa Aaslestad is a Master's student at SEFAS in 2023

- Exploring the Role of Wearables in REM sleep behavior disorder in Parkinson's Disease Diagnosis

My name is Lisa. I study health and society within the field of 'Perspectives on key health challenges' at the Department of Global Public Health and Primary Care (IGS), where I am fortunate to be writing my master's theses with and at SEFAS.

In my master's thesis, I'm using heart rate and accelerometer data from wearables to identify sleep/ wake stages throughout the night. This approach aims to potentially improve the objectivity in diagnostic assessment tools used for diagnosing REM sleep behavior disorder (RBD) in Parkinson's disease and reduce recall bias in the assessment process.

Data being used in this project are derived from the DIGI. PARK study, where 14 individuals with Parkinson's disease wore wearables continuously for 14 days. My work involves analyzing this data and comparing it with the RBD screening questionnaire.If this project show promising results, this method may offer a potential means to aid in identifying sleep disorders among individuals with Parkinson's disease.

Writing my master's thesis with SEFAS has given me a valuable opportunity to collaborate closely with researchers. Engaging in a scientific environment has been incredibly motivating and conductive to learning!

Lionel Giriteka

Lisa Aaslestad

"I am away on sabbatical"
by Bettina S. Husebø

It was an extraordinary feeling to write this note as my automated e-mail reply. But indeed, in autumn 2023, I had some months off for the first time in my researcher career. Sabbatical is a period of paid leave granted to a university teacher or other worker for study or travel, traditionally one year for every seven years worked.

During my sabbatical, I therefore planned to seek out the relevant research environments in Norway and internationally, with research stays in The Netherlands and USA. Funding of the stay was covered by the Dementia Research Award (2022).

My first host was **Wilco P. Achterberg**, professor at the Department of Care and Elderly Medicine, Leiden University Medical Center (LUMC), The Netherlands. Achterberg is also a senior consultant at Topaz (Leiden) and visiting professor at UiB, as well as visiting professor at Nottingham University, UK. He conducts research on pain in people with dementia, multicomponent interventions in nursing homes, QoL and the use of sensor technology. We were both related to the EU COST Action TD 1005 (2011-2016) where Achterberg was deputy chair. In recent years, we have collaborated on several projects and applications (e.g. COSMOS, LIVE@Home.Path). This resulted in joint mentorship, PhD candidates and master students, and more than 30 joint publications. In 2023, I was honored to be an opponent for the defense of Paulien van Dam, in a most traditional Dutch celebration.

Such travels are boring when you are traveling alone. Or to say it as an opposite, "Geteilte Freude ist doppelte Freude": it is more fun and inspiration to enjoy visits together with some of my colleagues: Line I. Berge, Monica Patrascu, Lydia D. Boyle, and Lucas Sandgathe, also mentioned in this report. They all are engaged in research, clinical work, sensing technology and innovation. We had a lot of fun but also great, great learning experiences.

Dr. Ipsit V. Vahia is a professor at Harvard University, director of the Institute of Technology in Psychiatry and director of Geriatric Psychiatry, McLean Hospital. Vahia heads the Technology and Aging Laboratory at McLean. Research areas include the use of sensor technology, digital phenotyping and AI in old-age psychiatry, and the clinical applications for the improvement of digital therapies. Vahia holds a visiting professorship at the Faculty of Medicine, UiB, and since 2018 has worked closely with SEFAS in connection with our ERC application and various ongoing projects that result in regular joint publications. During our visit, we met Vahia's research team during a joint seminar, visited the research-related Bridges nursing home, and prepared key aspects for a planned SFI application 2024/2025.

Dr. Rich Fletcher is the leader of the Mobile Technology Group within the Mechanical Engineering Department at the Massachusetts Institute of Technology (MIT), Cambridge, USA, where he develops a mobile sensors, analytic tools, and diagnostic algorithms to study problems in public health and behavior medicine. Fletcher also holds a faculty position at the University of Massachusetts Medical School, Department of Psychiatry, and serves as an instructor for Harvard Medical school. Over the past 20 years, Fletcher worked at the MIT Media Lab, produced over 20 US patents and several spin-off companies. Our animated encounter covered digital phenotyping design, new research at MIT using mobile technology, transferring research to industry and the market, consolidation of common research interests, as well as planning our upcoming SFI application.

Dr. Heather Allore is a professor at the Alzheimer's Disease Research Center's Data Management and Statistics Core at Yale University, USA. Her specialty is research and methodological development within Gerontological Biostatistics. For the past 20 years, Allore has been director of biostatistics at the Yale Program on Aging, and since 2011 has been director of the Yale Alzheimer's Disease Research Center's Data Management and Statistics Core. In this regard, Allore has been a collaborator in the COSMOS study, the LIVE@Home.Path study and the ActiveAgeing study. Reciprocal visits, research fellowship exchanges and joint articles have resulted from this connection. When visiting Yale, we presented mutual research projects, further discussed the LIVE@Home.Path main article and planned for our scheduled SFI application.

The accompanying photographs are documenting these inspiring visits, which were social, fun, and widened our perspectives. We are also grateful that such exchanges are encouraged by and appreciated at UiB. This is an important advantage of being a researcher.
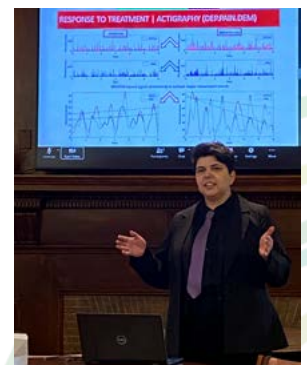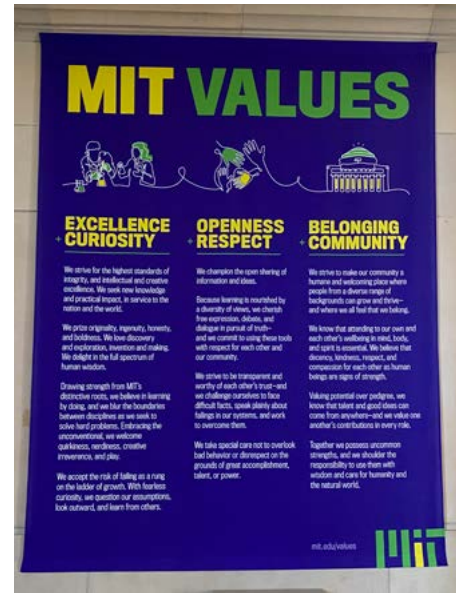
Scientific publications

Myrenget, Martin Elstad, Rustøen, Tone, Myskja, Audun, Småstuen, Milada, Rangul, Vegar, Håpnes, Odd, Borchgrevink, Petter C, Butler, Stephen, Selbæk, Geir, Husebø, Bettina, Sandvik, Reidun. The effect of a music-based caregiving intervention on pain intensity in nursing home patients with dementia. A cluster-randomized controlled study. PAIN (2023).

C. Berceanu, N. Arshad and M. Patrascu, "Contagion Propagation with Rule-Based Reasoning and Decentralized Control in an Agent-Based Susceptible-Infected-Recovered-Susceptible Infodemic Model," 2023 International Conference on Big Data, Knowledge and Control Systems Engineering (BdKCSE), Sofia, Bulgaria, 2023, pp. 1-6,

Helvik, AS., Bergh, S., Šaltytė Benth, J. et al. Pain and quality of life in nursing home residents with dementia after admission – a longitudinal study. BMC Health Serv Res 23, 1032 (2023).

Frank Lobbezoo, Merel C. Verhoeff, Ghizlane Aarab, Bettina S. Husebø, Willem van der Torre, Catherine M.C. Volgenant (2023) The contribution of palliative oral health care to dying with dignity, The Journal of the American Dental Association, Volume 154, Issue 1, 2023,

Puaschitz NGS, Jacobsen FF, Berge LI and Husebo BS (2023) Access to, use of, and experiences with social alarms in home-living people with dementia: results from the LIVE@Home.Path trial. Front. Aging Neurosci. 15:1167616.
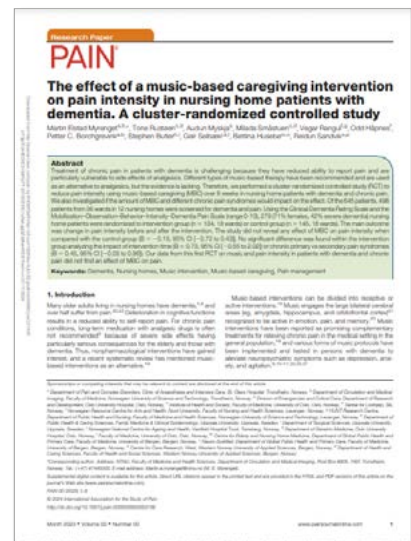
Dissemination

Husebø: Webinar Helhetlige pasientforløp, ehelsedirektoratet   Hvordan ønsker jeg å leve i fremtiden?

Husebø: Directorate of health, fagdag   Hvordan ønsker jeg å leve i fremtiden?

Husebø: AI directorate of health   Validation of artificial inteligence for health

Husebø: Harvard University (McLean)   How do I want to live in the future?

Husebø: Haraldsplass diakonale sykehus – Bruke av sensorteknologi hos elder

Husebø: NTNU Hvordan ønsker jeg å leve (og dø) i fremtiden?

Husebø: REK Kan REK hjelpe oss til å forstå demens?

Husebø: IGS instituttens dag - Digital literacy

Husebø: Digital helsedager. Digital kunnskap

Husebø: IPA conference Visualization of Pain and Agitation by System Analysis Algorithms

Husebø: IPA conference. Learning from trials: LIVE@Home. Path

Husebø: BMS – London. Agitation-Associated Alzheimer's Dementia (AAD) Expert Panel Meeting

Husebø: IKO conference. Decoding Death and Dying in people with Dementia by Digital thanotyping

Husebø: Leiden University hospital. Decoding Death and Dying in people with Dementia by Digital thanotyping

Husebø: Neuro-SysMed annual symposioum. Neuro-SysMed Consortium & SEFAS Contribution

Husebø: Neuro-SysMed annual symposioum. Visualization of Pain and Agitation by System Analysis Algorithms

Husebø: Harvard University (McLean). Ethics & Business

Husebø: Bergen Røde kors sykehjem. DIPH.DEM

Husebø: Løvåsen sykehjem. Decoding Death and Dying in people with Dementia by Digital thanotyping

Husebø: Helse Vest konferanse. Forskingsdriven innovasjon for ei berekraftig helseteneste

Husebø: MIT. Ethics & Business

Husebø: Yale University. Ethics & Business

Førsund: Neuro-SysMed annual symposium. Active ageing in a community-based living environment

Boyle: Neuro-SysMed annual symposium. Selecting a smartwatch for older adults with chronic complex conditions: hidden truths revealed

Boyle: Digital helsedager. Promotors and barriers to the implementation and adoption of assistive technology and telecare for people with dementia and their caregivers: a systematic review of the literature

Boyle: Yale University. Digital phenotyping for changes in activity at the end of life in people with dementia: an observational trial based on sensing technology (DIPH.DEM)

Boyle: Harvard University (McLean). Digital phenotyping for changes in activity at the end of life in people with dementia: an observational trial based on sensing technology (DIPH.DEM)

Boyle: OsloMet University conference. Design thinking workshop for innovation and technology in healthcare (Physical Therapy focus)

Patrascu: Seminar in Engineering Computing, HVL. Position control with evolutionary learning for wheeled vehicles

Patrascu: Neuro-SysMed annual symposioum. Tremor Detection with Wavelets from Acceleration Measurements in Parkinson's Disease

Patrascu: Clinical Pharmacy UiB. AI in Healthcare

Patrascu: Long-Term Consequences of the COVID-19 Pandemic for Society. Can Predictive Agent-Based Models Offer a Glimpse into the Long-Term Pandemic-Infodemic Co-evolution?

Patrascu: Harvard University (McLean). Digital phenotyping in dementia and Parkinson's disease

Patrascu: MIT   Digital phenotyping in dementia and Parkinson's disease

Patrascu: Yale University. Digital phenotyping in dementia and Parkinson's disease

Patrascu: REK Vest. Ethical challenges of AI development in health care

Patrascu: Pandemi Frokost: How can we use knowledge-based artificial intelligence to model infodemics?

Reithe: Neuro-SysMed annual symposioum. Wearable sensing technology for Parkinson's disease: preliminary results from the DIGI.PARK study

Reithe: IPA conference. Wearable sensing technology for Parkinson's disease: preliminary results from the DIGI.PARK study

Reithe: Digital helsedager. Digital phenotyping in people with Parkinsons disease (DIGI.PARK)

Berge: Symposium of biological and psychological psychiatry. Psychopharmacology Chronotheraphy for behavioral and psychological symptoms of dementia.

Berge: Forskningsdagene i Bergen. Forskernatt, søvnens makt: ungdom, overgang, alderdom.

Berge: Alrekdagene, trygg aldring. Helsetjenester til personer med demens.

Berge: Psykiatriveka. Kronoterapi mot adferdsforstyrrelser ved demens.

Berge: International Psychogeriatric Association Congress. The effectiveness of a multicomponent intervention on caregiver burden and informal care time in home-dwelling people with dementia and their caregivers. Results from the stepped wedge randomized controlled LIVE@Home.Path trial.

Berge: NeuroSysMed annual symposium. Virtual darkness and digital phenotyping in specialized and municipal dementia care. The DARK.DEM trial.

Berge: eSleep Europ. Light exposure, sleep quality, and sleepiness as predictors of memory decline in older adults: A cohort study from Norway

SEFAS in the media 2023

- Norges forskningsråd Slik blir Forskningsrådets nye porteføljestyrer 7. desember 2023

- Khrono Se hvem som skal bestemme om du får forskningsstøtte 7. desember 2023

- Bergens Tidende Rekordtildeling fra Trond Mohn stiftelse. 5. desember 2023

- NRK Vestland (morgensendingen) - Trond Mohn stiftelse støtter opprettelse av nytt forskingssenter 1. desember 2023

- Dagens medisin Eksperimentell medisin på sykehjemmet 23. november 2023

- Bergens Tidende Debatt om dødshjelp etterlyses 13. oktober 2023

- NRK.no Reidun (87) falt stygt flere ganger 18. september 2023

- NRK Distriktsnyheter Sørlandet Trygghetsalarm brukes lite 15. september 2023

- NRK Nyhetsmorgen Forskings viser at trygghetsalarmen ikke blir brukt 15. september 2023

- VG+ Eldreomsorgen om 20 år 13. september 2023

- VG Slik vil eldrebølgen endre Norge 12. september 2023

- Kommunal rapport Eldre bor i bofellesskap 22. juni 2023

- Aldring og Helse Boliger til fremme for seniorers helse og livskvalitet 22. juni 2023

- Avisa Nordland Nye boformer kan hjelpe oss til å se de eldre som en ressurs og ikke et problem 1. juni 2023

- Aftenposten Er dette løsningen på eldrebølgen? 27. mai

- Psykologisk.no Norsk forsker studerer hvordan sensorteknologi kan forutsi døden 9. mai 2023

- På Høyden ERC til Valen og Husebø 8. mai 2023

- NRK.no Legen tiet om medisinen til kona: – Skuffet over ikke å bli informert 25. april 2023

- KS.no Helgetun - et boligprosjekt i særklasse 23. mars 2023

- NRK Nordland Noreg er blant dei dårlegaste i verda - berre eit fåtal får døy heime 19. mars 2023

- TV2.no Berit (94): – Jeg har det helt fantastisk 17. mars 2023

- Tidsskriftet Ph.d.-disputaser 13. mars 2023

- TV2 nyheter - Berit (94) er treningsinstuktør 11. mars 2023

- Khrono Oppdaga at primærhelsetenesta er lite rigga for forskning 11. mars 2023

- Dagbladet Pluss Øker risiko for demens med 90 prosent 8. mars 2023

- Allers - Slik minimerer du risiko for demens 3. mars 2023

- Helsemagasinet VOF - Far gapte og visste ikke at sykehjemmet drev ulovlig medisinering - 19. februar 2023

- Sykepleien Vi som jobber i eldreomsorgen, blir også usynliggjort og diskriminert 7. februar 2023

- Tidsskriftet Det må satses på hjemmetjenestene 30. januar 2023

- Saltenposten Det trengs kompetanse til alle som berøres av demens 23. januar 2023

- Helgelendingen Er det ikke kjedelig og lite utfordrende å jobbe i eldreomsorgen? 23. januar 2023

- Dagbladet Øker demensrisiko med 165 prosent 24. januar

- Bergensavisen Demente Kjell var innlagt på kommunens sengepost 19. januar 2023

Slik minimerer du risiko for demens

Tre sykdommer som rammer mange nordmenn, øker drastisk risikoen for å utvikle Alzheimers eller demens. Enkle aktiviteter som trening, husarbeid og vennebesøk minsker risikoen.

Eksperimentell medisin på sykehjemmet

Eldreomsorg

Eldre om å bo i bofellesskap: – Yes, yes yes!

I et bofellesskap utenfor Bergen kan seniorer delta på trim, kor, folkedans, fellesmiddager, lesesirkel, bridge, filmkvelder og hagestell. – Det bør FLERE FÅ MULIGHET TIL, sier beboere.

Oppdaga at primærhelsetenesta er lite rigga for forsking

Marie Hidle Gedde forska på heimebuande med demens. Pandemien vart utfordrande, men også før den tid oppdaga ho at primærhelsetenesta ikkje var van med forsking.

Debatt om dødshjelp etterlyses

Vi er mange som er bekymret for manglende kontroll på livets slutt. Og vi trenger en grundig debatt.

FISKETORGET
BARNAS SJØMATDAG
LØRDAG 28. OKTOBER
SE PROGRAM

SEFAS celebrated 10 years in 2023

CENTRE FOR ELDERLY AND NURSING HOME MEDICINE
Department of Global Public Health and Primary Care
University of Bergen, Norway

SENTER FOR ALDERS- OG SYKEHJEMSMEDISIN
Institutt for global helse og samfunnsmedisin
Universitetet i Bergen

📍 Alrek Helseklynge,
Årstadveien 17

✉ Universitetet i Bergen
Senter for alders- og
sykehjemsmedisin
PO Box 7804
N-5020 Bergen

@ Bettina.Husebo@uib.no

🐦 @IgsSEFAS_UiB

🌐 **uib.no/en/sefas**